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EXAMINER	
ANDERSON, FOLASHADE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,213	SORENSEN, HERB	
	Examiner	Art Unit	
	FOLASHADE ANDERSON	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09/19/2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

The Examiner request specifically marketing information, presentations, brochures and user's guides/manuals pertaining to the use and marketing of the PathTracker System prior to the September 20, 2002 filing date as evidenced by the following articles:

- WhereNet to Assist Supermarkets and Consumer Goods Manufacturers with Analysis of Customer Buying Habits. (02 April 2002).
- "Knowledge at Wharton." Wharton.Upenn.Edu. (01 June 2005).

In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

In response to this requirement, please state the specific improvements of the subject matter in claimed invention over the disclosed prior art and indicate the specific elements in the claimed subject matter that provide those improvements. For those claims expressed as means or steps plus function, please provide the specific page and line numbers within the disclosure which describe the claimed structure and acts.

In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in

the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action (3 months).

DETAILED ACTION

This is the first non-final office action in response to Applicant's submission filed on 09/19/2003. Currently, claims 1-50 are pending.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: (0032) references device 12 not shown in figure 3 and (0039) references tracking system 36 which is not shown in figure 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 48-49 are objected to because of the following informalities: "a environment" the suggested correction is "an environment". Claim 49 depends from claim 48 therefore are reject for substantially the same reason given above. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1-40 recite the limitation "**normalizing path data for each path by use of a predetermined normalization function**" in the next step of the method claim "**calculating a predetermined statistical measure of the normalized shopping data**". There is insufficient antecedent basis for "normalized shopping data" in this limitation in the claim, since in no prior step of the claim is shopping data tracked, recorded or normalized.

Claims 2-40 depend from claim 1 therefore are reject for substantially the same reason given above.

Claims 1-50 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1-50 are objected to because of the following informalities: inconsistency when referring to "data" terms in the claim language for example:

Claim 2 recites "**position data**" and "**time data**" and claim 25 makes no reference to "data" where as claim 26 recites "normalized data" it is unclear what normalized data the applicant is referring to in this claim. Appropriate correction is required.

Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 34 recites **a step of calculating a predetermined statistical measure further includes calculating an ellipse to encompass a predetermined percentage of the shopper behavior or non-shopper behavior**. It is unclear how the ellipse is used to calculate a predetermined percentage of the shopper behavior. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 17, 38 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Farley et al (A Stochastic Model of Supermarket Traffic Flow, published 1966).

In regards to claim 1 Farley teaches **a method for analyzing a shopping environment, the method comprising the steps of:**

- **tracking a plurality of paths of a plurality of persons in the shopping environment** (p. 557 "actual paths traveled by a sample of shoppers are traced");
- **recording corresponding path data** (p. 562 "traffic flows collected on maps drawn by research assistants who secretly followed shoppers");
- **normalizing path data for each path by use of a predetermined normalization function** (p.559 "normalized by the sum of forces of feasible transitions");

- **calculating a predetermined statistical measure of the normalized shopping data** (p. 562 "the conditional probabilities of going to area j given shoppers are in area i"); **and**
- **producing output based upon the predetermined statistical measure** (p.566 "the Boston transactions observed on a variety of dissimilar layouts produced predictive structures very similar to those derived on actual data for the Pittsburgh stores")

Further the Examiner notes that it is recognized that the spirit of the instant application is done in an automatic environment, where as the teachings of Farley are produced in a semi-automatic method, however it has been held that it is not inventive to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result, see In re Venner, 120 USPQ 192 (CCPA 1958) and In re Rundell, 9 USPQ 220 (CCPA 1931).

In regards to claim 17 Farley teaches **the step of calculating includes calculating a master path based on a plurality of the paths tracked in the shopping environment** (p. 561 "P_{ij}=the transition probability from area i to area j in those cases where direct transition is feasible"; where the probability path is the master path in that it is the path mostly to be taken by shoppers based on data collect from actually shopper's paths).

In regards to claim 38 and 39 Farley teaches **the plurality of persons include a plurality of shoppers** (non-shoppers) (p. 557 "actual paths traveled by a sample of shoppers are traced").

The examiner notes that Farley teaches shoppers and does not expressly teach non-shoppers however, these differences are only found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP 2106.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-16, 18-26, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farley et al (A Stochastic Model of Supermarket Traffic Flow, published 1966) as applied above in claims 1, 17, 38 and 39 and further view of Smith (US Patent 6,563,423).

In regards to claim 2 Farley teaches **wherein the path data includes position data representing a series of tracked positions of a person in the shopping environment** (p.562, traffic flows collected on maps drawn by research assistants)

Farley does not expressly teach that the position data is **associated time data representing a corresponding series of times at which the person was tracked in each position.**

However Smith teaches if a tag (person) is detected then the location is recorded with the option to include a time stamp (col. 11, lines 31-36); in the analogous art of individual location tracking for the purpose of tracking a customer in a defined space.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the teachings of Smith, an optional time stamp, in the invention of Farley, to allow the information to be used later to calculate speed, which is beneficial as speed is an indicator of the areas in the store where the customer spent the most/least amount of time. Examiner notes that the timestamp in the teachings of Smith is automatic however the option of adding a time stamp to the traffic flow drawings of Farley would have been within the aptitude of one of ordinary skill in the art.

In regards to claims 3-5 and 12 which are directed toward **normalizing includes time adjusting** (shifting, scaling, calibration) **the time data for each path to a common** (calibration) **time reference** (starting point, duration).

Farley does not expressly teach time adjustment in association with the collected path data however in the area of comparative statistical analysis of data time adjustments are a common practice. For example Farley (p. 567) discloses the

possibility of adding density estimates to his model or sequences of history which would both require that one of ordinary skill in the art at the time the invention was made to be able to communize (scale, shift, calibrate) the path data in terms of time and space to allow these density estimates or sequences of history data to be useful.

Similarly Smith implies the use of time adjustment in association with the collected path data in the allowance for traffic distribution and the number of people passing a particular location both derived conclusions based on path data in relation to time (col. 12, lines 14-57).

Official notice is taken that time adjustments were old and well known techniques used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of time adjustment (scaling, shifting, calibrating) in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claims 6-8 and 10-11 which are directed to **normalizing includes converting path position data from different shopping environments into a common physical frame of reference** (standardized shopping environment dimensions, sectors), **to thereby produce normalized position** (scaled) **data for the paths.**

Farley teaches the probability that a customer(s) will enter area j given shoppers are in area i (p.562), where the Examiner understands that area j and i are defined as areas which carry similar products, which the Examiner interprets as a form of a standardized shopping environment. Additionally Farley shows that using data

gathered at one set of locations to make prediction at other store location which Farley indicated might be helpful in analysis of hypothetical store layouts as well as in the analysis of stores already in existence (p. 556).

Smith teaches that customers maybe tracked in one or more retail locations (col. 4, lines 5-8). Smith also discloses that the tracking data can be used on a local store level or from a centralized level (col. 12, lines 4-12) further it could be implied from the references disclosure that this data could be used to statistically compare multiple location data.

While neither Farley nor Smith expressly teaches a common physical frame of reference official notice is taken that the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples comparison was an old and well known technique used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of scaling (standardizing) to a common physical frame of reference in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claim 9 Farley teaches **each of the plurality of shopping environments has a longitudinal dimension and a length, a lateral dimension and a width, and the position data for each path includes a plurality of longitudinal and lateral coordinate values, and the step of converting the position data to a standardized frame of reference further includes dividing each longitudinal coordinate value by the length for the corresponding shopping environment, and**

dividing each lateral coordinate value by the width for the corresponding shopping environment (p. 562, " The maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a grid layout and numerical sequencing is an old and well known equivalent of a coordinate system).

In regards to claims 13-16 which are directed toward **the predetermined normalization function includes determining a proportion of the path completed** (distance traveled, time elapsed, cumulative purchases made with to a person on said path).

Farley teaches traffic flow in relation to purchase made (p. 565) however he does not expressly teach proportionalities of this information.

Smith teaches tracking a customer throughout a store and allows for the optional time stamp (col. 11, lines 31-36). As such one of ordinary skill in the art at the time the invention was made could have calculated the distance traveled along path and the time elapsed while a customer was on a path. Additionally Smith teaches a customer correlation engine to analyze the relationship between location and sales (col. 12, lines 46-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of Smith in the invention of Farley to allow the information to be used later to calculate various statistics on the shoppers experience thus providing a more robust probability model. Examiner notes that the timestamp, distance tracking and sales data in the teachings of Smith is automatic however this

optional information is available manually for combination in the disclosure of Farley would have been within the aptitude of one of ordinary skill in the art.

In regards to claims 18 and 19 which are directed towards **the shopping environment has a longitudinal** (lateral) **dimension, and each path has a plurality of longitudinal** (lateral) **coordinate values, and wherein the calculation of the master path includes averaging longitudinal** (lateral) **coordinate values of corresponding points of each path to obtain corresponding average longitudinal** (lateral) **coordinate values.**

Farley teaches (p. 562) "maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a grid layout and numerical sequencing is an old and well known equivalent of a coordinate system.

In regards to claims 20 and 21 which are directed towards **the step of calculating includes calculating density of a plurality of persons tracked throughout at least a portion of one or more shopping environments** (plurality of shopping environments).

Farley discloses the possibility of including density estimates to allow for a higher-order probability process (p.567).

In regards to claims 22 and 23 which are directed towards **the step of calculating includes calculating flow of a plurality of persons traveling throughout at least a portion of one or more shopping environments** (plurality of shopping environments)

Farley teaches calculating flow of shopper moving from one area of the store to another in several supermarkets in Pittsburg (p. 562).

In regards to claim 24 Farley teaches **the shopping environment has a longitudinal dimension and a lateral dimension, and each shopping path has a plurality of longitudinal coordinate values and a plurality of lateral coordinate values** (p.562" The maps were overlaid with a plastic grid and each customer's path coded as a numerical sequence"; where the Examiner asserts that a grid layout and numerical sequencing is an old and well known equivalent of a coordinate system), **and wherein the step of calculating further includes, for each shopping path, associating with each selected time a velocity** (p. 567, velocity or instantaneous density estimates might be built into a semi-Markov framework).

In regards to claims 25 and 26 which are directed towards **the step of calculating includes calculating shoppi ng intensity of a plurality of shoppers traveling throughout at least a portion of a shopping environment** (plurality of shopping environments).

Farley does not expressly teach the intensity of the traffic flow however the intensity could be calculated based on the data known in the method of Farley to create a more robust modeling system.

Smith teaches intensity in the number of customers in a store at any given time (col. 12, 17-18). While this analysis is shown in a single store the disclosure of Smith allows for multi-store tracking.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the disclosure of Smith, intensity, in the method of Farley to produce a more robust probability model.

In regards to claim 37 Farley teaches step **of calculating further includes the steps of:**

- **calculating a length of the shopping path** (p. 558, d_{ij} is the distance from area i to area j over the shortest feasible path);

Farley does not expressly teach:

- **smoothing the shopping path to obtain a smoothed path;**
- **calculating a length of the smoothed path; and**
- **comparing the length of the smoothed path with the length of the shopping path.**

Official notice is taken that smoothing techniques, using estimated measures for an actual location at each point in time rather than raw data, are old an very well known in the art at the time the invention was made to reduce noise in plots thus allowing a clearer picture of the data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a smoothing technique in the invention of Farley to allow for a clear analysis of multi data point data gather for one location over a period of time.

In regards to claim 40 both Farley and Smith teach the limitation of the claim in the context of a shopper (Farley p. 567 and Smith col. 12, lines 40-57); **the plurality of persons includes shoppers, and the step of calculating a statistical measure**

includes calculating a statistical measure based on shopper path data, the method further comprising, comparing the calculated statistical measures of the shoppers.

However neither Farley nor Smith teaches the plurality of persons includes "non-shoppers" or "non-shopper path data"

The Examiner holds that these differences are only found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP 2106.

Claims 27- 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farley et al (A Stochastic Model of Supermarket Traffic Flow, published 1966) and Smith (US Patent 6,563,423) as applied above in claims 2 and further view of Heller (Tracking Shoppers Through the Combination Store, published 1988).

In regards to claim 27 Farley teaches **wherein calculating includes examining one or more paths from each of the shopping environments to determine a measure of a predetermined shopper behavior or non-shopper behavior**

occurring in each of the sectors (p.562 "the model's predictive power was tested with data on actual supermarket traffic flows").

Farley does not expressly teach **normalizing includes determining a standardized shopping environment including sectors and converting the path data from each of a plurality of shopping environments to the standardized shopping environment.**

Farley does teach a comprehensive model using normalization, standard model for any store, for predicting traffic flow, a measure of shopper's behavior, based on store layout and actual traffic flow, collected path data (p.555).

Heller further teaches a predetermined measure of shopper's behavior in a store environment (p. 49, department penetration chart which shows individual store averages as well as overall average for the stores, standard shopping environment)

While Farley, Smith nor Heller expressly teaches a common physical frame of reference official notice is taken that the statistical technique of scaling (standardizing) to a common physical frame of reference, thus allowing for an apples to apples comparison were old and well known techniques used in analyzing statistical data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well known techniques of scaling (standardizing) to a common physical frame of reference in the analysis of data collected in the disclosure of Farley to allow for a higher order probability model (Farley 567).

In regards to claim 28 and 29 which are directed towards **the shopping environment has four sides, four comers, and a center** (partitioned into five

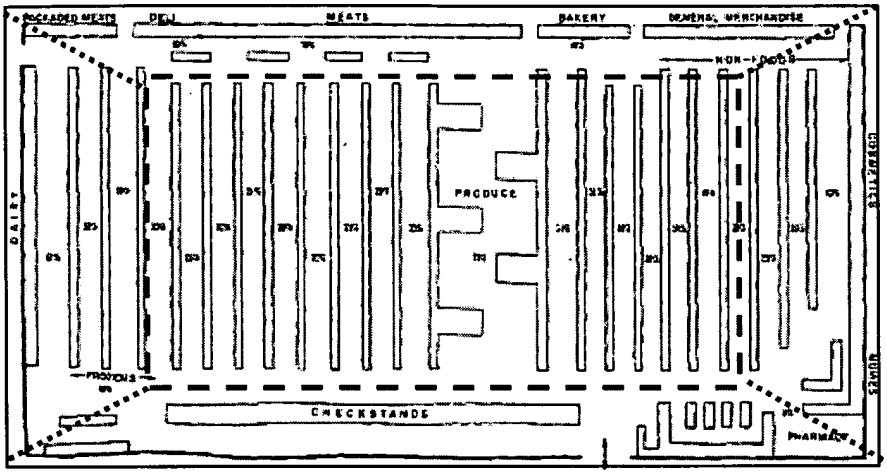
sections), **four of the sectors are substantially trapezoidal in shape having two sloping sides and a longer and a shorter of two substantially parallel sides, and the remaining sector is substantially rectangular in shape and having four sides and a center, the sloping sides of the four substantially trapezoidal sectors coinciding with segments of diagonal lines from opposite comers of the shopping environment, the longer of the two substantially parallel sides of each substantially trapezoidal sector coinciding with a side of the shopping environment, and the shorter of the two substantially parallel sides of each substantially trapezoidal sector forming a side of the remaining, substantially rectangular, sector, with the center of the substantially rectangular sector coincident with the center of the shopping environment.**

Farley teaches dividing the store in to numbered area (p.557)

Smith teaches various methods for dividing the monitored shopping area see figures 4, 5 and 7.

Heller illustrates four common store layouts, see p.48 -49 the examiner notes that all layouts show a substantially rectangular shape.

Official notice is taken that any store environment using old and well known geometric techniques can divide any store space in to four trapezoids with a center rectangle, see examiner's rough example below using Heller's store 3 layout (p.48). Further it is noted that it is also old and well known in the art that stores are divide in to multiply departments such as checkout, perishables, frozen etc.



It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the monitored store in to multiple sections as shown above to allow for a more robust statistical analysis of the path data collected.

In regards to claims 30-33 which are directed towards **the shopper** (non-shopper) **behavior is visiting** (slowing below a predetermined threshold speed, purchasing) **a predetermined region of the shopping environment corresponding to the sector of the standardized shopping environment.**

Farley teaches "occurrences of various pair-wise transitions are tabulated to give frequency distribution of transitions"; where transitions are the actual paths taken by a customer moving from one area of the store to another (p.557).

Smith teaches that a the orientation or pace of a customer may be derived form the array (col. 10, lines 37- 39) and how long a customer stopped (slowing below a threshold) at a certain location (col. 12, lines 28-30) and whether a customer visiting a certain location ultimately purchased a product from that location (col. 12, lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was mad to include the teachings of Smith in the invention of Farley to of Farley to produce a more robust probability model.

In regards to claim 34-35 which are directed towards **step of calculating a predetermined statistical measure further includes calculating an ellipse to encompass a predetermined percentage of the shopper behavior or non-shopper behavior** (percentage of trip completion).

Farley teaches dividing the store in to numbered area and determining if a person travels from one area to another (p.557); where the percentage of trip complete would be 100% for yes the person moved from area j to i and 0% complete if the person does not move from area j to i.

Smith teaches monitoring the number of people passing a particular location could be determined (col.12, lines 31-32).

Heller teaches penetration the percentage of people actually going into or passing a particular location (p.47); where this percentage would be the percentage of a trip complete.

Official notice is taken that any store environment using old and well known geometric techniques can divide any store space in to any geometric shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the monitored store in to multiple sections to allow for a more robust statistical analysis of the path data collected.

In regards to claim 36 Farley teaches **the output includes a contour plot of percentage of trip completion for a plurality of paths** (p.559, "circular movement of traffic through the store, evidenced by the fact that the modal path through the (defined as the most frequent cell to cell traffic transition) generally follows the store's perimeter, but tends to break up as the sweep of a circle is completed"; where the percentage of trip complete would be 100% for yes the person moved from area j to i and 0% complete if the person does not move from area j to i.).

Claims 41-45 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 6,563,423).

In regards to claim 41 Smith teaches **A system for use in analyzing a shopping environment, the system comprising:**

- **a computing device configured to receive path data corresponding to a plurality of persons tracked in one or more shopping environments** (col. 3, lines 44-46)**, the path data including position data and time data** (col. 11, lines 31-36)**, and execute an analysis program having...a statistical calculation module** (col. 12, lines 40-57)**;**
- **wherein the statistical calculation module is configured to calculate a predetermined statistical measure** (col. 12, lines 14-32; where the Examiner understands that if the system is programmed to compute for example intensity then that statistical measure is predetermined)

Smith does not expressly teach that the data is normalized path data

- **wherein the normalization module is configured to convert the path data to a common time frame of reference and a common physical frame of reference, to thereby produce normalized path data; and**

Official notice is taken that normalization and the scaling of time and physical frame (converting to a common time/physical frame) were old and well known techniques in the art of statistical analysis of data. These techniques allowed for an apples to apples comparison of similar data collected at different times and in different environments. The programming of a system or the manual calculation of this information would have been within the aptitude of one of ordinary skill in the art at the time the invention was made using the data collected by the system of Smith. Examiner notes that the system of Smith allows for the addition of other analysis engines (col. 12, lines 55-57).

The Examiner's position that the statistical techniques of normalizing and scaling were known in the art. These known techniques are applicable to the system of Smith as they allow for further analysis of the data collected by Smith.

One of ordinary skill in the art at the time the invention was made would have recognized that applying these known statistical techniques to the system of Smith would have yield predictable result in an improved system. It would have been recognized that applying the known statistical techniques to the system of Smith would have yielded predictable results because of the level of ordinary skill in the art as

demonstrated by the reference applied shows the ability to incorporate such a feature in to the system.

In regards to claim 42 Smith teaches **a shopper tracking module configured to receive shopper path data from a tracking system** (col. 12, lines 1-12).

In regards to claim 43 Smith teaches **the tracking system includes sensors configured to track shopper tags throughout each of the shopping environments, to thereby produce the shopper path data** (col. 11, lines 31-36).

In regards to claim 44 Smith does not expressly teach **a non-shopper tracking module configured to receive non-shopper path data from a tracking system.**

However Smith teaches a system for receiving path data (col. 12, lines 1-12) and that path data can be associated with purchase data (col.12, lines 23-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made that path data not associated with a purchase would constitute a non-shopper.

Further the Examiner hold that the difference in a shopper and non-shopper path data is only found in found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217

USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

In regards to claim 45 Smith does not expressly teach **the tracking system includes sensors configured to track non-shopper tags throughout each of the shopping environments, to thereby produce the non-shopper path data.**

However Smith teaches the tracking of paths (col. 11, lines 31-36) and that path data can be associated with purchase data (col.12, lines 23-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made that path data not associated with a purchase would constitute a non-shopper.

Further the Examiner hold that the difference in a shopper and non-shopper path data is only found in found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP. 2106.

in regards to claim 48 Smith does not expressly teach **an environment tracking module configured to receive movable fixture path data from a tracking system.**

However official notice is taken that one of ordinary skill in the art would have been able to apply the receiving of path tracking data in the system as taught by Smith

(col. 12, lines 1-12) to movable fixtures to allow a more detailed study in traffic flow and the store layout (col. 33-38).

In regards to claim 49 Smith does not expressly teach **the tracking system includes sensors configured to track environment tags throughout each of the shopping environments, to thereby produce the movable fixture path data.**

However official notice is taken that one of ordinary skill in the art would have been able to apply the path tracking system as taught by Smith (col. 11, lines 31-36) to movable fixtures to allow a more detailed study in traffic flow and the store layout (col. 33-38).

In regards to claim 50 Smith teaches does not expressly teach **predetermined statistical measure is selected from the group consisting of average shopper depth, average shopper fight-left position, average shopper path, average shopper density, average shopper velocity, shopping intensity, percent of trip completed, average non-shopper depth, average non- shopper right-left position, average non-shopper path, average non-shopper density, average non-shopper velocity.** However the system of Smith teach a shoppers statistical calculations such as intensity (col. 12, lines 17-18) density (col. 12, lines 18-19) etc; official notice is taken that average of such calculation is an old and very well known mathematical formula. Additionally Smith allows for the addition of other types of analysis not expressly disclosed (col. 12, lines 55-57).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the old and well know mathematical formula of averaging

individual customer data to determine the predictable outcome of an average of this data for a specific location, chain, etc, in the invention of Smith to provide a more robust study of customer traffic flow to analyze for example customer safety across the board (col.12, lines 48-51).

Claims 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 6,563,423) as applied to claim 41 above and in further view of Schkolnick et al (US Patent 5,729,697).

In regards to claim 46 Smith does not expressly teach **a product tracking module configured to receive product path data from a tracking system.** However Smith allows for other types of senor reading in the disclosure (col. 13, line 21-27 and 40-44).

Schkolnick teaches an intelligent shopping cart which allows for the transmission of object location in the store as well as in the cart using radio frequency transmission.

It would have been obvious to one of ordinary skill in the art to include the tracking system of Smith the ability to also detect products as taught by the system of f Schkolnick since the claimed invention is merely a combination of old elements and in the combination each element merely would have preformed the same function as it did separately and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

In regards to claim 47 Smith does not expressly teach **the tracking system includes sensors configured to track product tags throughout each of the shopping environments, to thereby produce the product path data** However Smith allows for other types of senor reading in the disclosure (col. 13, line 21-27 and 40-44).

Schkolnick teaches an intelligent shopping cart which allows for the transmission of object location in the store as well as in the cart using radio frequency transmission (abstract).

It would have been obvious to one of ordinary skill in the art to include the tracking system of Smith the ability to also detect products as taught by the system of f Schkolnick since the claimed invention is merely a combination of old elements and in the combination each element merely would have preformed the same function as it did separately and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sorensen (US Patent 7,006,982 B2) teaches a method for analyzing shopper's behavior in a shopping environment, by inventor of the instant application
- Sorensen (US Publication 2002/0178085 A1) teaches a method for analyzing purchase selection behavior, by inventor of the instant application
- Ogasawara (US Patent 6,513,015 B2) teaches visual image data bundled with demographic, transaction and tracking data
- Berstis et al (US Patent 6,718,341 B1) teaches employee location and indicating that location on an in-store mapping system
- Hind et al (US Patent 7,076,441 B2) teaches using tracking information to improve store layout
- Cato et al (US Patent 6,574,549 B2) teaches customer tracking and route planning and re-planning
- Godsey et al (US Publication 2002/0161651 A1) teaches tracking customers paths in relationship to the store configuration
- Belcher et al (US Patent 5,920,287) teaches tracking of humans as well as objects

- Lausch (CA 2390456 A1) teaches tracking of multiple persons in a defined area
- Schwartz (Tracking technology sheds light on shopping habits, published 04/02/02 teach teaches mapping the tracking of shoppers in a retail environment
- Schor (The selling of selling why we buy what and when we do? Paco Underhill's got it all figured out, published 07/04/99) teaches theories on shopping behaviors
- Envirosell.com (web archive, published date 04/2001) teaches reporting of tracking information based on observations of customer behavior

This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FOLASHADE ANDERSON whose telephone number is (571)270-3331. The examiner can normally be reached on Monday through Thursday 8:00 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq R. Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. A./
Examiner, Art Unit 3623

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